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NEW NAMES IN VERNONIEAE (ASTERACEAE) OF NORTHEASTERN BRAZIL

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ABSTRACT

The monotypic genera *Irwinia* G.M. Barroso, *Oiospermum* Less., and *Pithecoseris* Mart. ex DC. are considered synonyms, respectively, of *Blanchetia* DC., *Centratherum* Cass., and *Chresta* Vell. ex DC., based on morphological analyses. Three new combinations are proposed: **Blanchetia coronata** (G.M. Barroso) Loeuille & Pirani, **comb. nov.**, **Centratherum repens** (Spreng.) Loeuille & Pirani, **comb. nov.**, and **Chresta pacourinoides** (Mart. ex DC.) Siniscalchi & Loeuille, **comb. nov.** Additionally, *Chresta amplexifolia* Dematteis, Roque, & Miranda is synonymized under *Chresta pacourinoides* and the name *Calydermos repens* Spreng. is neotypified.

Monotypic taxa create logical problems by violating the set theoretic basis of Linnaean classification (i.e., Gregg's paradox; Gregg 1954) and indicate unknown relationships (Ebach & Williams 2010). Out of the 131 currently recognized genera in tribe Vernonieae 55 are monotypic; such high proportion of monotypic genera (42%) reflects how poorly understood relationships among members of the tribe are (Keeley et al. 2007; Loeuille 2011). Even though phylogenetic analyses of American Vernonieae in progress (Loeuille 2011 unpubl.; Loeuille et al. in prep.) will help to clarify this situation (e.g. *Pithecoseris* Mart. ex DC.), some rare and poorly known taxa (e.g. *Irwinia* G.M. Barroso and *Oiospermum* Less.) have not been included yet in these analyses. Nonetheless morphological examination of available herbarium specimens of *Irwinia* and *Oiospermum* indicates a close relationship between *Irwinia* and the monotypic *Blanchetia* DC., as well as between *Oiospermum* and *Centratherum* Cass. The required synonymizations are here proposed and detailed.

Synonymization of *Irwinia* under *Blanchetia*

Irwinia coronata G.M. Barroso was described in 1980 based on a single collection from the caatinga of Bahia State, in northeastern Brazil. A close relationship with *Blanchetia heterotricha* DC. was pointed out by the author, since both taxa share an ovoid involucre and two types of trichomes (dark multicellular unbranched trichomes and pale stellate ones with forked arms) which have not been found in other Vernonieae taxa so far (Loeuille 2011). The main reason to establish this taxon as a new genus and not as a new species of *Blanchetia* was, likely, the presence of a biseriate pappus in *Irwinia coronata* (vs. uniseriate in *Blanchetia*). However, the number of pappus series varies frequently between species of a same genus in Vernonieae (e.g., *Eremanthus*, *Lychnophora*, *Paralychnophora*) (Loeuille 2011). Other characteristics cited by Barroso (1980) to set apart *Irwinia* from *Blanchetia*, such as habit (subscandent vs. erect) and number of florets per capitulum (5 vs. 8-10), are commonly used to distinguish species and not genera in Asteraceae. Therefore *Irwinia* is here considered a synonym of *Blanchetia* and the new combination for the only species published in *Irwinia* is provided below.

BLANCHETIA CORONATA (G.M. Barroso) Loeuille & Pirani, **comb. nov.** *Irwinia coronata* G.M. Barroso, Rodriguésia 32: 11. 1980. **TYPE. BRAZIL. Bahia:** ca. 28 km N de Seabra, estrada para Água de Rega, 1000 m.s.m., 27 Feb 1971, *H.S. Irwin et al. 31174* (holotype: RB!; isotypes: F [scan seen], NY!, US!). Figure 1.

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DO RIO DE JANEIRO
Registro N.º 157382
THE NEW YORK BOTANICAL GARDEN
Plants of the Planalto do Brazil
Estado de Bahia
No. 31174 Serra da Água de Rega
Irwinia coronata G.M. Barroso.
Semi-climbing shrub ca. 3m high. Heads white. Cut-over gallery forest, ca. 28km N. of Seabra, road to Agua de Rega, ca. 1000m. elev.
H. S. Irwin, R. M. Harley, G. L. Smith 27 February 1971

Figure 1. Holotype of *Blanchetia coronata* (*Irwin et al. 31174*, RB).

Additional specimens examined. **BRAZIL. Bahia: Itaberaba**, Chapada Diamantina, 13°43' S, 39°08' W, 30 Apr 2006, *Guedes et al. 12288* (ALCB). **Maracás**, km 16 a 18 da rodovia Maracás-Contendas do Sicorá (BA 250), 27 Apr 1978, *Santos et al. 3212* (CEPEC, HRB). **Wagner**, próximo a Dourados, 12°17' S, 41°07' W, 550 m, 10 Jun 2002, *Bautista & Sarmento 1085* (HRB).

Synonymization of *Oiospermum* under *Centratherum*

The monotypic genus *Oiospermum* Less. shares with *Centratherum* Cass. a herbaceous to subshrubby habit, T-shaped trichomes, a usually solitary capitulum with foliaceous subinvolucral bracts, and a caducous pappus. It is traditionally distinguished from *Centratherum* by the lack of pappus and a unique kind of cypsela setulae. However, a more recently described species of *Centratherum* from Bolivia, *C. cardenasii* H. Rob., also lacks pappus (Robinson 1980a). Robinson (1980a) cited some additional characteristics of *Oiospermum involucratum* (Less.) Nees & Mart. (glabrous phyllaries, style with the pubescent part of the upper shaft very short) aiming to the maintenance of two distinct genera. In absence of a phylogenetic hypothesis including *Oiospermum*, we believe that the classification should explicitly reflect the fact that *O. involucratum* is morphologically closely related to *Centratherum*, rather than maintaining a monotypic genus. Consequently we synonymize here *Oiospermum* under *Centratherum*, and the new combination is provided as follows.

CENTRATHERUM REPENS (Spreng.) Loeuille & Pirani, **comb. nov.** *Calydermos repens* Spreng., Neue Entdeck. Pflazenk. 1: 278. 1821. **TYPE. BRAZIL**. *F. Sello(w) s.n.* (neotype, here designed, P [scan seen] [barcode no. P04339863]). Figure 2.

Ethulia involucrata Nees & Mart. in Wied-Neuwied, Nova Acta Phys. Med. Acad. Caes. Leop.-Carol. Nat. Cur. 12: 3. 1824. *Ampherephis psilocarpa* Nees & Mart. in Wied-Neuwied, Nova Acta Phys. Med. Acad. Caes. Leop.-Carol. Nat. Cur. 12: 4. 1824. *Oiospermum involucratum* (Nees & Mart.) Less., Linnaea 4: 339. 1829. **TYPE. BRAZIL**. In Brasiliae arenosis circa San Pedro de Alcantara, 1816, *M.A.P. Prinz zu Wied-Neuwied s.n.* (holotype, P [scan seen] [barcode no. P04388734]). Figure 3.

The species was first described by Sprengel in 1821 as *Calydermos repens*. Sprengel found that his former observation was imperfect ("*manca observatio*") and used the name *Ethulia involucrata* Nees & Mart. in *Systema Vegetabilium* (Sprengel 1826) without giving priority to his epithet for that species. No specimen is cited in either publication. The Compositae of Sprengel's herbarium were sold to Schultz-Bipontinus and are now, through the herbier Cosson, at P in the herbier général (Blake 1930; Stafleu & Cowan 1985). There are two Sellow sheets at P (barcodes P04339863 and P03617811) but only one (P04339863) bears the labels of the Cosson and Schultz-Bipontinus herbaria, therefore this sheet is here chosen as a neotype of *Calydermos repens* Spreng. The holotype of *Ethulia involucrata* has been erroneously attributed to Carl Friedrich Philipp von Martius (1794–1868) by Baker (1873) in *Flora Brasiliensis*; however, the original label was written by Maximilian Alexander Philipp, Prinz zu Wied-Neuwied (1782–1867), who collected in Brazil from 1815 to 1817 (Moraes, pers. comm.).

Additional specimens examined. **BRAZIL. Bahia: Canavieiras**, Vale do Rio Pardo, Oct 1952, *Pinto 52253* (ALCB). **Euclides da Cunha**, 10°30' S, 39°00' W, 20 Mar 2004, *Guedes et al. 10899* (ALCB).

Synonymization of *Pithecoseris* under *Chresta*

Pithecoseris Mart. ex DC. was first described by Candolle (1836), based on a collection by Martius located on the current state of Pernambuco, northeastern Brazil. The description cites lobed leaves with amplexicaul base, fistulose branches, big, congested glomerulus, and dimorphic cypselae. The genus has remained monotypic since then and has been placed in different subtribes throughout its taxonomic history. Currently, it is placed in subtribe Chrestinae, due to the similarity of its pollen type and anther appendages to those in *Chresta* Vell. ex DC. (Robinson

Figure 2. Neotype of *Centratherum repens* (*Sello(w) s.n.*, P).

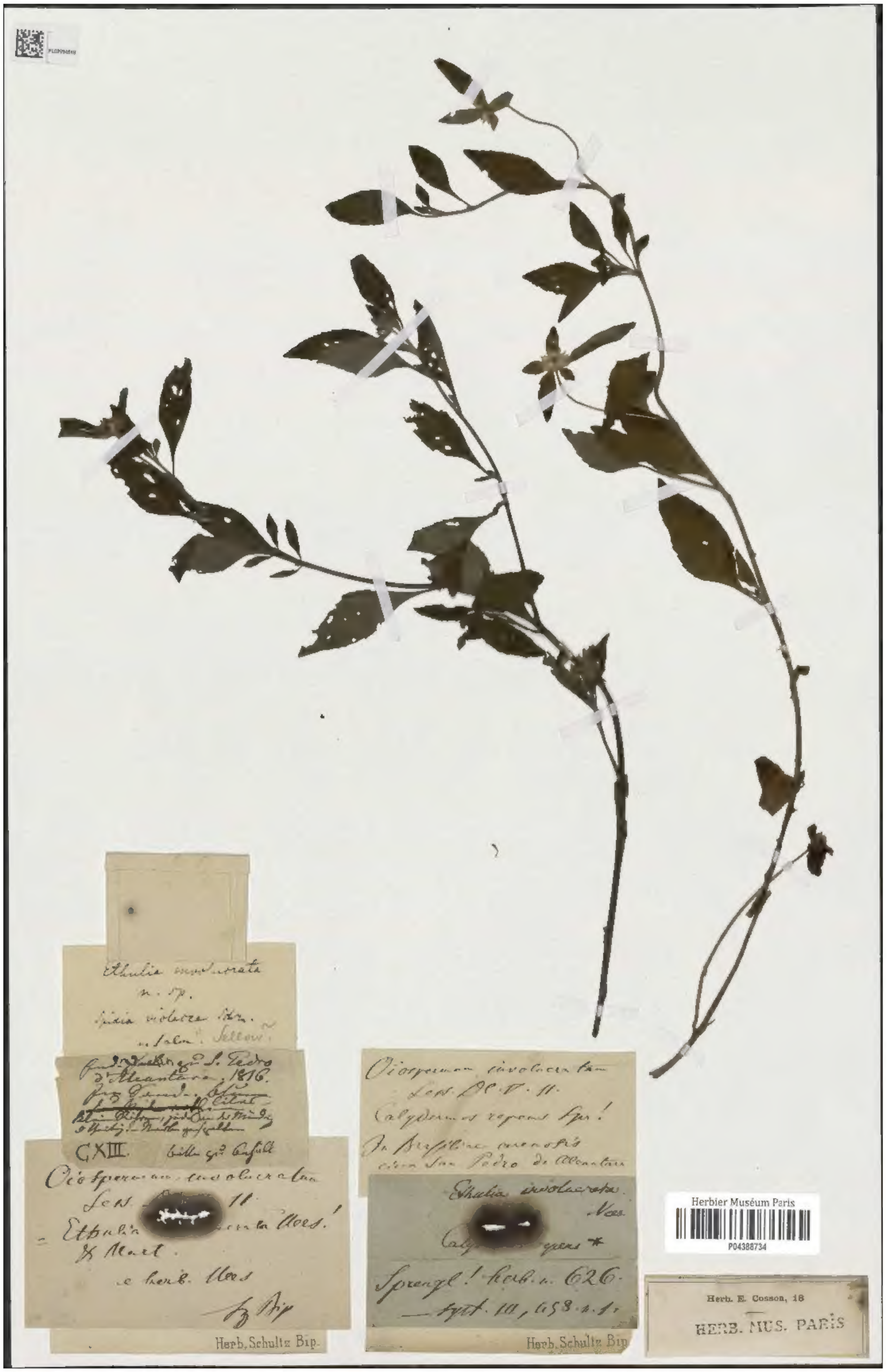

Figure 3. Holotype of *Ethulia involucrata* (*Prinz zu Wied-Neuwied s.n.*, P).

1999). Robinson (1999) also referred to the strangeness of the syncephala in *Pithecoseris*, which are indeterminate, stating that similar forms can be found in *Chresta martii* (DC.) H. Rob.

Under the current circumscription of *Chresta* are included rosulate herbs with syncephaly, and T-shaped trichomes (Loeuille 2011; Loeuille et al. in prep.). *Argyrovernonia* MacLeish has been treated as a synonym of *Chresta* (Robinson 1980b, 1999, 2007), even if its lobed leaves and indeterminate synflorescence differ from those usually found in other members of *Chresta*. Also, species formerly belonging to *Argyrovernonia* are found exclusively in the Brazilian northeast *caatinga,* while regular members of *Chresta* are usually restricted to the *cerrado* and *campo rupestre*. In a recent phylogeny of American Vernonieae, focusing on Brazilian species and using molecular and morphologic data (Loeuille 2011, Loeuille et al. in prep.), *Pithecoseris* emerges as sister-group of *Argyrovernonia*. This implies that if *Argyrovernonia* is maintained as a synonym of *Chresta*, then *Pithecoseris* should also be considered a synonym, in order to keep the whole group monophyletic.

Based on the recommendation of treating a more broadly interpreted *Chresta* (Robinson 1999) in the general morphology of *Pithecoseris*, similar to that of *Argyrovernia* (with lobed leaves and indeterminate syncephala, growing restricted to the *caatingas*), and in order to maintain *Chresta* as a monophyletic taxon, we hereby propose the synonymization of *Pithecoseris* under *Chresta*. The following new combination is provided.

CHRESTA PACOURINOIDES (Mart. ex DC.) Siniscalchi & Loeuille, **comb. nov.** *Pithecoseris pacourinoides* Mart. ex DC. Prodr. 5: 84. 1836. **TYPE. BRAZIL.** Habitat in campis, Provinciae Pernambucanae, *M. von Martius 2529 (550)* (holotype: M [scan seen]). Figure 4, 6.

Chresta amplexifolia Dematteis, Roque & Miranda, **syn. nov.**, Bot. J. Linn. Soc. 157: 587-590. 2008. **TYPE. BRAZIL.** Bahia, Mun. Ipuaçu, Monte Alto, 12°13'55"S, 39°4'35", 12 Aug 2003, *A.C. Pereira et al. 15* (holotype: HUEFS!; isotypes: ALCB!, K [scan seen], CTES). Figure 5.

Chresta amplexifolia Dematteis, Roque, & Miranda has been recently described (Roque et al. 2008) based on a specimen found in Bahia, Brazil, which strongly resembles a smaller form of *Chresta pacourinoides*. Subsequently, on the same inselberg where the type of *C. amplexifolia* was collected, the first author found a large population of *C. pacourinoides* whose individuals present several different morphotypes apparently related to soil depth and degree of sunlight exposure among different spots of the inselberg. Therefore, we conclude that *C. amplexifolia* was based on smaller individuals of *C. pacourinoides* growing on a more exposed environment on the top of the inselberg. Due to general morphology and the environmental implication previously mentioned, we consider *C. amplexifolia* a synonym of *C. pacourinoides*.

Additional specimens examined. **BRAZIL. Bahia: Andaraí,** Chapada Diamantina, 12°48' S, 41°23' W, 2 Sept 1999, *Guedes et al. 6924* (ALCB). **Feira de Santana,** João Durval Carneiro, 12°13.55' S, 39°04.35' W, 12 Aug 2003, *Pereira 15* (HUEFS); 12°13.55' S, 39°04.35' W, 22 Sept 2007, *Loeuille & França 350* (SPF); 12°13.55' S, 39°04.35' W, 22 Sept 2007, *Loeuille & França 351* (SPF); 12°13.55' S, 39°04.35' W, 22 Sept 2007, *Loeuille & França 352* (SPF). **Jacobina,** 25.V.1967, *Costa s.n.* (ALCB); 26 Oct 1978, *Lima et al. 745* (RB); 11°05' S, 40°38' W, 28 Jun 1983, *Coradin et al. 6176* (CEN, RB); Caatinga do Moura, 10 Sept 1960, *Costa s.n.* (ALCB); Serra do Tombador, 30 Oct 1978, *Martinelli et al. 5168* (ALCB, RB); 11°06' S, 40°45' W, 29 Aug 1981, *Ferreira 52* (HRB, HUEFS); 27 Oct 1995, *Carvalho et al. 6154* (CEPEC, NY, US); 11°05.13' S, 40°40.21' W, 2 Jul 1996, *Harley et al. 3330* (ALCB, HUEFS); **Lençóis,** Chapada Diamantina, 18 Aug 1996, *Grillo & Conceição 12* (SPF). **Morro do Chapéu,** Fazenda Jaboticaba, 11°28.18' S, 41°13.56' W, 9 Sept 2006, *Gonçalves & Souza 124* (HUEFS); Cidade das Pedras, 11°40.18' S, 41°01.05' W, 9 Dec 2006, *Guedes et al. 12975* (ALCB). **Palmeiras,** 12°27' S, 41°28' W, 19 Nov 1983, *Noblick & Pinto 2784* (HUEFS); 12 Oct 1987, *Guedes et al. 1565* (ALCB); 12°27.04' S, 41°38.15' W, 12 Oct 1987, *Queiroz et al. 1993* (HUEFS); 12°27.20' S, 41°28.15' W, 25 Oct 1994, *Carvalho et al. 1003* (ALCB, HRB); 12°27.02' S, 41°28.16' W, 29

Figure 4. Holotype of *Chresta pacourinoides* (*Martius 2529 (550)*, M).

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Herbário da Universidade Estadual de Feira de Santana
Pithecoseris pacourinoides Mart. ex DC
B. Loeuille IX 2007
Herbário da Universidade Estadual de Feira de Santana
Chresta sp. nov
Det. Nadia Roque & J. M. Gonçalves
HERBÁRIO
Universidade Estadual de Feira de Santana
Feira de Santana - Bahia - Brasil
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E8
Brasil, Bahia, Feira de Santana: Platô mais alto. Distrito de João Durval Carneiro (antigo distrito de Ipuaçu) 12°13'55"S 39°4'35"W
Inselberg Monte Alto
Pithecoseris
ASTERACEAE
Herbácea, ca. 70cm alt. Folhas membranáceas pilosas, brácteas verdes. Flor com corola com base branca e ápice lilás, estigma lilás, anteras rosas.
Pereira, A.C. 15 F.França, E.Melo, C.F.Lucca, P.L.Ribeiro, et al. 12/8/2003
Det

Figure 5. Holotype of *Chresta amplexifolia* (*Pereira et al. 15*, HUEFS).

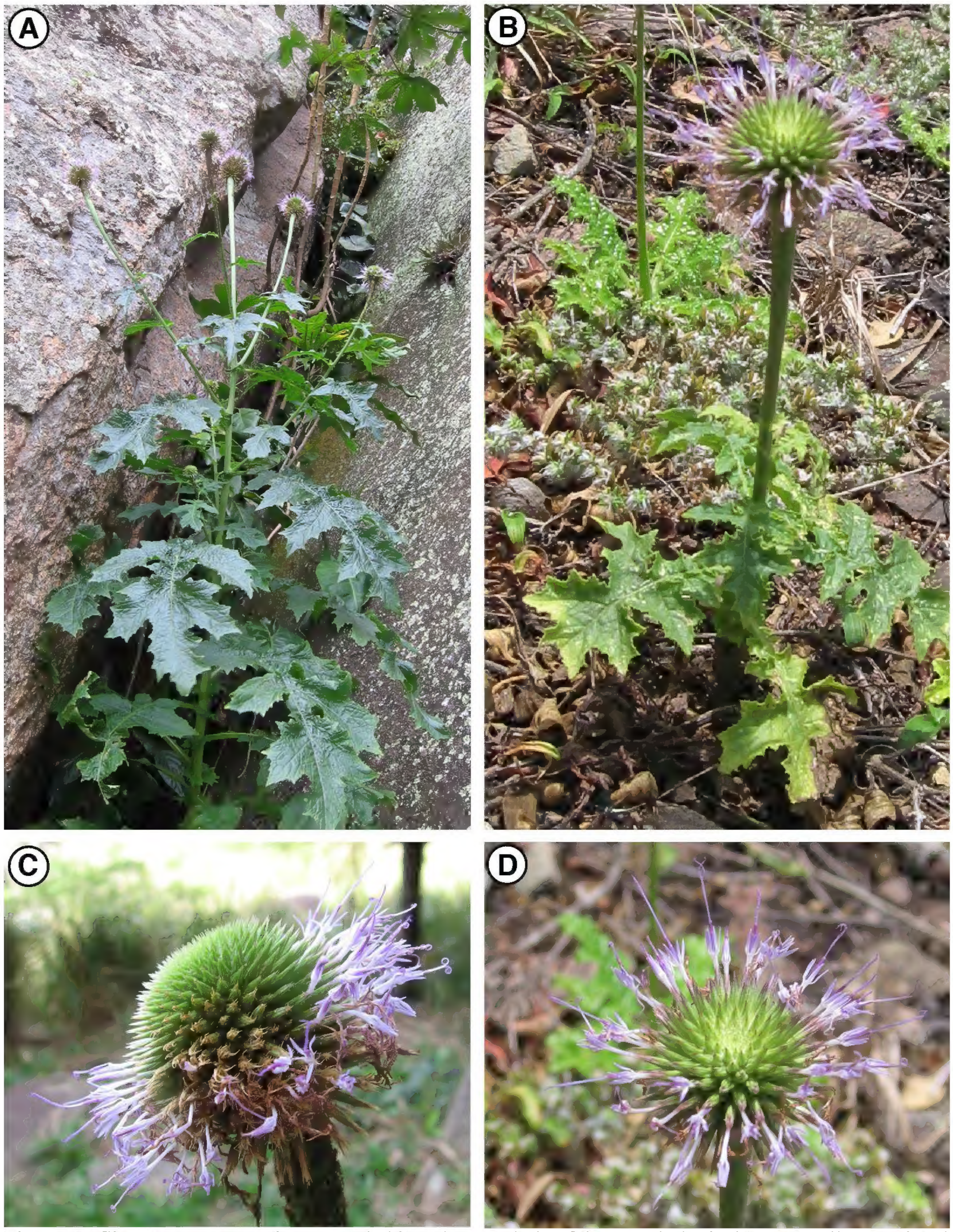

Figure 6. *Chresta pacourinoides*. A, C: habit and syncephala of the morphological type usually associated with *C. pacourinoides*. B, D: habit and syncephala of the morphological type that was described as *C. amplexifolia*. Photos: Benoît Loeuille.

Aug 1994, *Orlandi et al. 504* (ALCB). **Ceará:** *Gardner 1712* (NY, W). **Cedro,** 2 Mar 1933, *Luetzelburg 23748* (RB). **Cratéus,** Ibiapaba, 21 May 1997, *Figueiredo s.n.* (EAC); Serra das Almas, 6 Jun 2001, *Sobrinho & Bruno 109* (EAC); 10 May 2003, *Costa s.n.* (EAC). **Guaramiranga,** 15 Jul 1908, *Ducke 1264* (UB); Serra do Baturité, 2 Jun 1993, *Araujo & Figueiredo s.n.* (EAC). **Ibiapaba,** Serra do Ibiapaba, Jul 1949, *Mello s.n.* (RB). **Independência,** 12 Jun 1979, *Castro & Nunes s.n.* (EAC). **Maranguape,** Serra da Maranguape, 24 Nov 1955, *Lima 2409* (RB); 27 Jun 1981, *Martins & Nunes s.n.* (EAC). **Meruoca,** Serra da Merucoa, 16 Sept 1989, *Fernandes et al. s.n.* (EAC).

Monsenhor Tabosa, Serra da Mata, 19 Jul 1984, *Fernandes & Angélica s.n.* (EAC). **Pacoti,** Pico Alto, 11 Oct 1982, *Angélica s.n.* (EAC); Sítio Olho d´Água dos Tangarás, 24 Jun 1995, *Lima-Verde s.n.* (EAC); Pico Alto, 17 Jun 1989, *Figueiredo s.n.* (EAC). **Quixadá,** Açude Cedro, 31 Aug 1935, *Drouet 2392* (US); 1 Jun 1941, *Bezerra s.n.* (EAC); 12 Jun 1941, *Bezerra 250* (EAC); 4 Sept 2000, *Oliveira 136* (EAC); 23 Jul 1995, *Sérgio & Castro s.n.* (EAC). **Quixeré,** Chapada do Apodí, 5°12' S, 37°48' W, 13 Jun 1996, *Paula-Zárate et al. 244* (EAC); 5°12' S, 37°48' W, 13 Jun 1996, *Paula-Zárate et al. 247* (EAC); 5°11.51' S, 37°46.43' W, 17 Jun 1997, *Barros et al. 146* (EAC). **Santa Quitéria,** Itataia, 7 Jun 1984, *Fernandes et al. s.n.* (EAC); 17 Jul 2005, *Lemos et al. 422* (HUEFS). **Sobral,** Fazenda Macapá, 23 May 1981, *Fernandes & Martins s.n.* (EAC). **Tianguá,** 7 Jul 1997, *Cavalcanti. s.n.* (EAC). **Viçosa do Ceará,** 21 Jun 1972, *Sucre & Silva 9260* (RB); 8 Jun 1991, *Fernandes et al. s.n.* (EAC). **Paraíba: Alagoa Grande,** 24 Sept 1988, *Montenegro, s.n.* (JPB). **Areia,** 20 Sept 1945, *Vasconcellos 2246* (US); Escola de Agronomia do Nordeste, 29 Aug 1953, *Moraes 787* (RB); 8 Aug 1949, *Xavier s.n.* (JPB). **Cabaceiras,** Sítio Bravo, 31 Aug 1992, *Barbosa et al. 1295* (JPB). **Itaporanga,** 25 Mar 1936, *Luetzelburg s.n.* (EAC). **Maturéia,** Pico do Jabre, 7°15.96' S, 37°23.03' W, 11 Jul 2007, *Agra et al. 6976* (JPB). **Pocinhos,** 31 Oct 2007, *Gadelha Neto & Lima 1942* (JPB). **Teixeira,** Pico do Jabre, 7°11.10' S, 37°25.53' W, 18 May 2002, *Agra et al. 5899* (HUEFS). **Pernambuco: Agrestina,** 13 Oct 1966, *Tenório 190* (IPA). **Alagoinha,** 26 Jun 1988, *Pereira 321* (IPA). **Altinho,** Maciço do Tabocas, 8°33.45' S, 36°33.45' W, 1 Nov 1996, *Baracho & Siqueira-Filho 338* (UFP). **Bezerros,** Eng. Riachão, 1 Nov 1959, *Lima 3399* (IPA). **Bonito,** 8 Nov 2003, *Cavalcanti et al. 167* (IPA). **Brejo da Madre de Deus,** Propriedade Biturí, 19 Aug 1980, *Perruci & Maia Filho 1* (RB). **Buíque,** Vale do Catimbau, 23 Jan 2006, *Bocage et al. 1065* (IPA). **Exu,** 6 Aug 1986, *Lima 307* (IPA). **Jaqueira,** Usina Colônia, 8°43.23' S, 35°50.19' W, 15 Nov 2001, *Siqueira-Filho 1191* (UFP). **Pedra,** 23 Jul 1987, *Chiappeta s.n.* (IPA). **Pesqueira,** Izabel Dias, 8°01.36' S, 36°35.38' W, 7 Aug 2000, *Cantarelli & Viana 400* (UFP); Serra do Ororubá, 26 Dec 1996, *Siqueira-Filho et al. 457* (UFP). **São Caetano,** Sítio Boqueirãozinho, 8°15.03' S, 36°08.07' W, 16 Oct 2000, *Cantarelli & Viana 472* (IPA, UFP). **Rio Grande do Norte: Felipe Guerra,** Sítio do Boqueirão, 5°36.01' S, 37°41.02' W, 2 Jul 2007, *Oliveira et al. 1924* (MOSS).

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